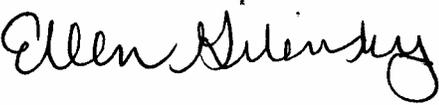


COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Division of Water Quality Programs
Ellen Gilinsky, Ph.D., Director

Subject: Guidance Memo No. 07-2008, Amendment No. 2
Permitting Considerations for Facilities in the Chesapeake Bay Watershed

To: Regional Directors

From: Ellen Gilinsky, Ph.D., Director 

Date: October 23, 2007

Copies: Deputy Regional Directors, Regional Water Permit Managers, James Golden, Rick Weeks, CBP staff, OWPP staff, OWE staff

Summary:

The purpose of this guidance is to provide instructions for establishing nutrient limits and offset requirements in VPDES permits for dischargers to the Chesapeake Bay. The guidance replaces Guidance Memorandum GM 05-2009, "VPDES Nutrient Limitations for Significant Dischargers to the Chesapeake Bay Watershed" and reflects key changes made as a result of the requirements of 9 VAC 25-40 (Policy for Nutrient Enriched Waters), 9 VAC 25-720 (Water Quality Management Plan), § 62.1-44.19:15 of the Code of Virginia (as of July 1, 2005)(establishing treatment technology and offset requirements for new and expanded facilities in the Chesapeake Bay watershed) and 9 VAC 25-820, *General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia*.

This guidance was previously amended to provide a summary of permit conditions and corresponding fact sheet narrative that should be included in all permits for facilities subject to the aforementioned regulations, and the discussion of concentration limits was edited to provide clearer guidance.

This amendment addresses the timing of inclusion of concentration limits in individual VPDES permits.

This amendment also addresses non-significant industrial dischargers, located in the Chesapeake Bay Watershed, that received phosphorus limits under the Nutrient Enriched Waters Policy. *Aside from this amendment, this guidance does not apply to existing non-significant dischargers until they propose expansion of their facilities.*

Electronic Copy:

An electronic copy of this guidance in PDF format is available for staff internally on DEQNET, and for the general public on DEQ's website at: <http://www.deq.virginia.gov/waterguidance/permits.html>

Contact Information:

Please contact Kyle Ivar Winter, P.E., Office of Water Permit Programs, at (804) 698-4182 or kiwinter@deq.virginia.gov with any questions regarding the application of this guidance.

Disclaimer:

This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any particular method for the analysis of data, establishment of a wasteload allocation, or establishment of a permit limit. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.

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1. Introduction

Background: On March 24, 2005, Governor Mark Warner signed legislation (Senate Bill 1275) authorizing a Chesapeake Bay Watershed Nutrient Credit Exchange Program and directing DEQ to issue a watershed general permit for significant point source discharges of nutrients to the Chesapeake Bay and its tributaries. This legislation (found in § 62.1-44.19:12-19 of the *Code of Virginia*) also required that as of July 1, 2005, new and expanded dischargers to the Chesapeake Bay and its tributaries obtain offsets for the nutrients discharged to state waters. The WGP regulation, 9 VAC 25-820-10 et seq. – *General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia*, (referred to in this guidance as the “WGP”; individual permits will be referred to simply as “IPs”) was approved by the State Water Control Board at its September 6, 2006 meeting; the requirements of this regulation extend to the IPs issued to by new and expanded facilities. Facilities subject to this regulation are required to register for coverage under the WGP in addition to being covered by their existing IPs.

Purpose: The purpose of the guidance is to help regional permit staff process IP applications consistently and accurately in accordance with the Chesapeake Bay nutrient regulations. Each section of this guidance contains the legislative background to the regulations and the recommended action to be taken by the regional permit staff. The guidance also features a table that should help the permit staff identify appropriate requirements for a given permittee’s situation, and contains sample correspondence for use by regional permit staff.

The general impact of the various nutrient regulations on IP processing is listed below :

- The annual loading limits in the WGP (total nitrogen, total phosphorus or both) become effective for a given permittee when any of the following events occur:
 - The tributary-wide compliance date for a given parameter lapses;
 - A facility receives a Certificate to Operate (CTO) for nutrient removal equipment (the limit will actually take effect January 1 of the year following the year in which the CTO is issued), or
 - A facility waives their schedule of compliance (the limit will actually take effect January 1 of the year designated by the permittee).
- When the loading limits in the WGP become effective for a given permittee, they supersede loading limits in IPs that:
 - are directed solely toward restoration and protection of the Chesapeake Bay, and
 - became effective *prior to* January 1, 2007.
- The schedule of compliance in the WGP supersedes all schedules of compliance for loading limits in IPs that:
 - are solely directed toward restoration and protection of the Chesapeake Bay, and
 - were to become effective *on or after* January 1, 2007.
- Several IPs contain concentration limits that are intended to apply to nutrient removal equipment that has not yet been constructed. These limits shall be revised in accordance with this guidance as a permit modification, or alternately, revocation and reissuance, to be initiated by regional permit staff upon the issuance of a Certificate to Construct (municipal facilities) or the approval of a Concept Engineering Report (industrial facilities) for nutrient removal technology.
- The monitoring and reporting requirements in the WGP supersede those in IPs where the monitoring is not necessary to demonstrate compliance with an effective limit in the IP. This monitoring should be deleted from DMRs associated with IPs in accordance with the procedures contained on Page 21 of this guidance. Monitoring that is necessary to demonstrate compliance with an effective limit in the IP (e.g.,

TP concentration limits based on technology that has been installed, or TKN where it is limited to protect in-stream dissolved oxygen) is retained in the IP.

- The WGP requirement that permittees submit a compliance plan (and that permittees submit annual updates to the plan) supersedes the Basis of Design (BoD) and Interim Optimization Plan (IOP) requirements in IPs. It does not affect requirements that exist outside of IPs, such as grant agreements.
- The WGP does not address site specific water quality conditions related to nutrients (e.g., TMDLs); both the WGP and IPs may contain loading limits, monitoring requirements and schedules of compliance as dictated by site specific water quality conditions. A permittee may generate and sell credits based on compliance with its WGP load limit while violating a more stringent load limit in its IP. Likewise, local water quality issues may impact a facility's ability to acquire credits in order to comply with the load limit in the WGP, and how multiple facilities under common ownership or operation may be able to aggregate or "bubble" their load limits.
- The WGP does not address technology-based limits (e.g., Federal Effluent Guidelines for industrial dischargers, NEW limits) and allows that IPs may include concentration-based limits based on nutrient technology installed, whether by new construction, expansion or upgrade. A facility may generate and sell credits based on compliance with its WGP load limit while violating concentration limits in its IP. Likewise, facility-specific concentration limits may require facilities that have been aggregated or "bubbled" by registration with other facilities under common ownership or operation to operate their treatment technology to a higher standard than would be otherwise required for the owner/operator to comply with the aggregated or "bubbled" load limit.

Impact of pending regulations upon this guidance: DEQ is developing regulations for the reclamation and reuse of wastewater (9 VAC 25-740). Permittees will have the option of reducing the loads of nutrients discharged by reclaiming and reusing their treated wastewater in accordance with this regulation; this may result in permittees proposing to install treatment technology less stringent than what would otherwise be required under the nutrient regulations. This may also result in the owners/operators of new and expanded dischargers proposing to acquire fewer load reductions to offset the waste loads discharged from their facilities. The basis for this option can be found in by § 62.1-44.19:13 of the *Code of Virginia*:

"Biological nutrient removal technology" means (i) technology that will achieve an annual average total nitrogen effluent concentration of eight milligrams per liter and an annual average total phosphorus effluent concentration of one milligram per liter, or (ii) equivalent reductions in loads of total nitrogen and total phosphorus through the recycle or reuse of wastewater as determined by the Department.

"State-of-the-art nutrient removal technology" means (i) technology that will achieve an annual average total nitrogen effluent concentration of three milligrams per liter and an annual average total phosphorus effluent concentration of 0.3 milligrams per liter, or (ii) equivalent load reductions in total nitrogen and total phosphorus through recycle or reuse of wastewater as determined by the Department.

If a permittee provides, as part of their compliance plan (for significant dischargers) or in their registration statement (for new and expanding facilities) a demonstration that reclamation and reuse of water will result in their meeting their load limit without installing nutrient removal technology that might otherwise be required, DEQ may approve this option. Land treatment not otherwise associated with reclamation and reuse may also be considered.

2. Application for IPs and registration for coverage under the WGP:

A. Legislative and regulatory requirements:

Existing significant dischargers are addressed by § 62.1-44.19:14.C.5 of the *Code of Virginia* as follows:

“..every owner or operator of a facility authorized by a Virginia Pollutant Discharge Elimination System permit to discharge 100,000 gallons or more per day, or an equivalent load, directly into tidal waters, or 500,000 gallons or more per day, or an equivalent load, directly into nontidal waters (shall) secure general permit coverage by filing a registration statement with the Department within a specified period after each effective date of the general permit.”

OWPP has already issued coverage to these facilities. OWPP is also populating the CEDS database for these facilities. CEDS data rules for this permit will be included in the CEDS users’ manual.

New and expanded facilities are addressed by § 62.1-44.19:14.C.5 of the *Code of Virginia* as follows:

“..any owner or operator of a facility authorized by a Virginia Pollutant Discharge Elimination System permit to discharge 40,000 gallons or more per day, or an equivalent load, directly into tidal or nontidal waters (shall) secure general permit coverage by filing a registration statement with the Department at the time he makes application with the Department for a new discharge or expansion that is subject to an offset or technology-based requirement in § 62.1-44.19:15...”

9 VAC 25-820-10 states:

“New discharge” means any discharge from a facility that did not commence the discharge of pollutants prior to July 1, 2005, except that the term does not apply in those cases where a Certificate to Construct (for sewage treatment works, or equivalent DEQ approval for discharges from industrial facilities) was issued to the facility on or before July 1, 2005... “Expansion” or “expands” means initiating construction at an existing treatment works after July 1, 2005 to increase design flow capacity, except that the term does not apply in those cases where a Certificate to Construct (for sewage treatment works, or equivalent DEQ approval for discharges from industrial facilities) was issued on or before July 1, 2005.

Appendix C of this guidance discusses situations in which owners/operators of facilities currently operating under a Virginia Pollution Abatement (VPA) permit may apply for an IP and register for WGP coverage.

B. Recommended Actions:

When reviewing IP applications for new and expanding facilities, regional permit staff should alert the applicant to the WGP registration requirement, and provide registration statements as part of the application package for the IP, as applicable. This guidance provides sample correspondence (see Appendix A).

Regional staff should send registration packages to owners/operators of new and expanded facilities that are already subject to these requirements, as they are required by law to register for coverage.

Eligibility for WGP coverage is restricted to facilities permitted by an IP for the activity in question.

Since the offset requirement clearly links information provided in the WGP registration statement to compliance conditions in the IP, permit staff should recognize that an IP application for new and expanded facilities is only complete when the registration statement is complete. **Offset proposals shall provide for the waste loads that are projected to be discharged on an annual basis for the term of the IP.**

Note that new and expanding facilities were subject to the offset requirements of Senate Bill 1275 as of July 1, 2005; however, as neither the WGP or the implementation guidance documents existed at that time, permittees may not be able to declare how their proposed waste loads will be offset. Until the non-point offset guidance is finalized, DEQ will grant WGP coverage to the owners/operators of new and expanding facilities with the condition that a Certificate to Operate will not be issued for the new or expanded facility until an offset declaration has been received and approved by the Department. Suggested IP language to address this situation can be found on Page 14 of this guidance.

Once the policies pertaining to offset acquisition have been finalized, applicants for new and expanded facilities must demonstrate that they can fulfill the offset requirement in § 62.1-44.19:15.B.1.b of the *Code of Virginia* as a prerequisite for any associated IP application submitted to DEQ. No IP processing should be undertaken for such applicants who fail to make this demonstration. Previously registered facilities that have not been issued a Certificate to Construct (CTC) will be required to provide the demonstration prior to issuance of the CTC.

OWPP intends that new and expanded facilities concurrently apply for the IP and WGP according to the following timeline:

- 1) Facility submits a registration statement to OWPP concurrently with submittal of an IP application to the regional office.
- 2) OWPP reviews the registration statement and the plan for offsetting additional loads, and
 - i) Compares any proposed purchase of allocations from an existing point source to the allocations on the registration list to determine whether:
 - (a) The purchase is in the same tributary as the proposed discharge;
 - (b) The exchange would affect any requirement to comply with local water quality-based limitations, and
 - (c) The proposed seller is capable of selling the allocation listed on the application.
 - ii) Verifies (with assistance from the Department of Conservation and Recreation (DCR), that any proposed purchase of an allocation from a non-point source BMP is
 - (a) In the same tributary as the proposed discharge;
 - (b) Capable of affecting any requirement to comply with local water quality-based limitations, and
 - (c) One which the proposed seller is capable of selling.
 - iii) If no allocation is available for purchase through i) or ii), coordinates acquisition of an allocation through Water Quality Improvement Fund (WQIF), or reviews the facility-specific plan for offsetting the expanded discharge;
 - iv) Populates the CEDS database with relevant links to the IP, and
 - v) Forwards registration statement to regional office for continued processing of the WGP and the IP.
- 3) Regional office performs concurrent review of IP application; the IP application is deemed complete only after the registration statement is deemed complete.
- 4) Regional office completes the IP action; when the IP is signed, the regional office concurrently grants coverage under the WGP and completes the relevant CEDS data entry.

OWPP will be responsible for all modifications to the basin specific registration lists and for maintaining a copy of the current list on the agency website.

Expanding facilities that are currently non-significant dischargers will be subject to load limits that will be derived from current design flows and installed nutrient removal technology (for industrial facilities that provide nutrient treatment, regional staff should request an engineering analysis that indicates what concentrations should be achievable with the existing treatment works; for industrial facilities that do not provide nutrient treatment, current nutrient effluent concentrations may be considered); because of this, regional office staff should refrain from waiving nutrient testing requirements contained in Form 2A and/or 2C unless the permittee has previously submitted a large body of data.

3. Loading limits:

A. Legislative and regulatory requirements:

The load limits in the WGP are derived from one of three sources, and, in accordance with the enabling legislation, are to be expressed to the nearest pound (the regulation notes that this is without regard to the rules of mathematical precision):

- **Significant dischargers** have a waste load allocation in the Water Quality Management Planning Regulation (9 VAC 25-720). Waste load allocations may be traded.
- **Expanding non-significant dischargers** are not included in 9 VAC 25-720, which implies that these facilities do not have a waste load allocation that can be traded; however, § 62.1-44.19:15 A.1 of the *Code of Virginia* contains the phrase “expansion beyond his waste load allocations or permitted design capacity as of July 1, 2005”. “Permitted design capacity” (or “permitted capacity, in § 62.1-44.19:15 A.2., A.3) refers to the nutrient load discharged by a non-significant discharger (for a municipal facility, this is based on the facility’s design flow and treatment technology; industrial facilities must be considered on a case-by-case basis) and is defined in 9 VAC 25-820-10.
- No waste load allocation or “permitted design capacity” is provided to **new facilities** in either the law or the regulations, except in the case of certain VPA permittees (see Appendix C for a discussion of this).

When the loading limits in the WGP become effective, they will supersede certain loading limits already in effect in the IPs of the permittees affected by this new regulation. Per the code, the WGP shall control in lieu of technology-based, water quality-based, and best professional judgment, interim or final effluent limitations for total nitrogen and total phosphorus in IPs for facilities covered by the WGP where the effluent limitations for total nitrogen and total phosphorus in the IPs are based upon standards, criteria, waste load allocations, policy, or guidance established solely to restore or protect the water quality and beneficial uses of the Chesapeake Bay or its tidal tributaries.

Mass loading limits for nutrients in IPs *that are currently in effect and enforceable will remain so until the effective date of the nutrient limit in the WGP for the parameter of concern* (i.e., currently the January 1, 2011 “final effluent limits effective date” in Part I of the WGP); such limits include:

- Water quality based mass load limits, such as those prescribed by basin management plans and nutrient enriched waters designations that are less stringent than the nutrient limits in the WGP; and
- Performance-based or WQIF agreement-based mass load limits established for significant dischargers in accordance with GM04-2017

DEQ remains authorized to establish and enforce more stringent effluent limitations for total nitrogen or total phosphorus in IPs, as necessary; in addition to the mass loading limits in the WGP, IPs may contain:

- More stringent water quality based nutrient limits in IPs needed to protect local water quality, such as those prescribed by Total Maximum Daily Loads (TMDLs);
- More stringent technology-based effluent concentration limits for facilities that have installed nutrient control technology, or
- More stringent mass loading limits based on Federal Effluent Guidelines for industrial process water.

Several IPs have included schedules of compliance associated with loading limits. The tributary wide schedules of compliance in the WGP supersede conflicting or duplicative compliance schedules for nutrient limits in IPs whose final (nutrient) limit compliance dates have not passed as of the WGP effective date (January 1, 2007).

By letter dated November 30, 2006, EPA Region 3 expressed concurrence with this approach to addressing existing load limits in IPs (see Appendix B to this guidance).

B. Recommended actions:

Load limits derived from the waste load allocations found in 9 VAC 25-720 will not be included in IPs.

IPs with an associated WGP will include the following footnote on each effluent limits page for outfalls covered by the WGP, in which there are NO concentration limits or monitoring)

“This facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010094, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.”

The following footnote will be included on each effluent limits page for outfalls covered by the WGP, in which there ARE concentration limits or monitoring)

“In addition to any Total Nitrogen or Total Phosphorus concentration limits (or monitoring requirements without associated limits) listed above, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010094, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.”

Existing facilities:

Except for those circumstances in which site-specific or facility-specific conditions warrant the inclusion of limits more stringent than those in the WGP, no loading limits or compliance schedules are required when reissuing or modifying IPs for any significant dischargers in the Chesapeake Bay Watershed. In addition, BoD and IOP submittals are not required and are now moot in any IP that contains them. Note that BoD and IOP submittals may still be required under previous WQIF grant agreements.

Expanding facilities:

As previously discussed, the annual loading limit for total nitrogen and total phosphorus for these facilities is what is referred to in the legislation as “waste load allocations”, (for facilities that received waste load

allocations in the WQMP regulation) or “permitted (design) capacity” (for all other expanding facilities). **The loading limits will be contained in the registration list associated with the WGP.**

For facilities that are significant dischargers, the loading limit in the WGP will remain equal to the allocation for that facility that is contained in 9 VAC 25-720 (Water Quality Management Plan).

For municipal facilities that are not currently significant dischargers (i.e., they have no allocation in 9 VAC 25-720), the “permitted design capacity” or “permitted capacity” should be calculated using the following formula (Equation 1):

$$\text{Total N or P (in pounds/yr, to the nearest whole pound)} = \text{concentration (mg/l, to the nearest 0.01 mg/d)} \times \text{design flow (mgd, to the nearest 0.001 MGD)} \times 8.3438 \times 365 \text{ (days/yr), where}$$

Concentration = the appropriate value from Table 1 (below), and
 Design flow = the design flow for the facility from which the facility was discharging as of July 1, 2005, or the design flow for a proposed facility for which a Certificate to Construct was issued prior to July 1, 2005, whichever is greater.

Industrial facilities’ permitted design capacity should be calculated on a case-by-case basis; contact OWPP for assistance.

Note that the Biological Nutrient Removal (BNR) and State-of-the-art (SOA) technology concentrations listed below should only be used if those levels of treatment were required by the IP or a grant agreement with DEQ.

Table 1
Summary of total nitrogen and total phosphorus concentrations associated with levels of treatment technology

| Parameter | Level of technology (when calculating “permitted design capacity”, consider the level installed that corresponds to the “design flow” used) | Concentration (mg/l) |
|-----------|---|----------------------|
| Total N | Secondary | 18.70 |
| | BNR | 8.00 |
| | SOA | 3.00 |
| Total P | Secondary | 2.50 |
| | BNR | 1.00 |
| | SOA | 0.30 |

An example of this follows:

An STP west of the fall line, constructed in 1995 to provide secondary treatment at a design flow of 0.40 MGD is expanding to 0.60 MGD. A CTC for the 0.60 MGD plant was issued on October 1, 2005. There is no local water quality concern related to nutrients.

The facility is currently non-significant and has no allocation in the WQMP. The “permitted design capacity” is defined as

$$\text{Total N or P (in pounds/yr)} = \text{concentration (mg/l)} \times \text{design flow (mgd)} \times 8.3438 \times 365 \text{ (days/yr), where (Eq.1)}$$

*Design flow – as of July 1, 2005, the approved flow was 0.40 MGD.
 Concentration – the treatment provided as of July 1, 2005; use the values for secondary treatment on Table 1:*

$$\begin{aligned} \text{Total Nitrogen} &= 18.70 \text{ mg/l} \times 0.40 \text{ MGD} \times 8.3438 \times 365 \text{ days/yr} &= & \underline{22780 \text{ pounds/yr}} \\ \text{Total Phosphorus} &= 2.50 \text{ mg/l} \times 0.40 \text{ MGD} \times 8.3438 \times 365 \text{ days/yr} &= & \underline{3045 \text{ pounds/yr}} \end{aligned}$$

These numbers represent the loading limits that would be recorded by OWPP in the registration list for the 0.60 MGD expansion and would be enforced through the WGP; these limits would not be included in the IP.

In addition, load reductions or waste load allocations that are acquired by expanding facilities to offset increases in their discharged waste loads will be recorded in the registration list.

New facilities:

New facilities will receive an annual load limit of zero, to be recorded by OWPP in the registration list and would be enforced through the WGP; these limits would not be included in the IP. Load reductions or waste load allocations that are acquired by the owners/operators of new facilities to offset their discharged waste loads will be recorded in the registration list.

4. Technology requirements and concentration limits:

A. Legislative and regulatory requirements:

Both § 62.1-44.19:15.A. of the *Code of Virginia* and 9 VAC 25-40-70, *Strategy for Chesapeake Bay Watershed*, address treatment technology requirements. 9 VAC 25-40-70 A. states:

“A. As specified herein, the board shall include technology-based effluent concentration limitations in the individual permit for any facility that has installed technology for the control of nitrogen and phosphorus whether by new construction, expansion, or upgrade. Such limitations shall be based upon the technology installed by the facility and shall be expressed as annual average concentrations.”

A summary of the technology requirements for new and expanding facilities in § 62.1-44.19:15.A. of the *Code of Virginia* and 9 VAC 25-40-70 can be found in Table 2:

**Table 2
 Summary of treatment technology requirements for new and expanding facilities located in the Chesapeake Bay watershed**

| Proposed design flow | New facility? | Receiving stream | Minimum Treatment technology |
|-----------------------------|----------------------|-------------------------|-------------------------------------|
| 0.10 MGD > Q ≥ 0.04 MGD | No | Tidal or Non-Tidal | Secondary Treatment |
| 0.10 MGD > Q ≥ 0.04 MGD | Yes | Tidal or Non-Tidal | BNR |
| 0.50 MGD > Q ≥ 0.10 MGD | | Non-Tidal | BNR |
| Q ≥ 0.10 MGD | | Tidal | SOA |
| Q ≥ 0.50 MGD | | Non-Tidal | SOA |

The application of these requirements differs between significant dischargers that are not undergoing expansion, expanding facilities and new facilities; even within the aforementioned categories of dischargers, these requirements are not universal. § 62.1-44.19:16. A. of the *Code of Virginia* and 9 VAC 25-40-70 A.4 allow less stringent requirements for new and expanding facilities, in that on a case-by-case basis, DEQ may establish a technology-based standard and associated concentration limitation less stringent than the technology standards

summarized in Table 2 above, based on a demonstration by an owner or operator that the specified standard is not technically or economically feasible for the affected facility or that the technology-based standard and associated concentration limitation would degrade receiving waters or require the owner or operator to construct treatment facilities not otherwise necessary to comply with his waste load allocation (or permitted design capacity) without reliance on the acquisition of compliance credits pursuant to § 62.1-44.19:18 of the *Code of Virginia*.

Another exception to the technology requirement can be found in 9 VAC 25-40-70 B.:

“In accordance with Article 1.1 (§ 10.1-1187.1 et seq.) of Chapter 11.1 of Title 10.1 of the Code of Virginia, the board may approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed. “

Suggested IP language to address this situation can be found on Page 12 of this guidance.

On occasion, more restrictive limits may be necessary. DEQ is authorized by § 62.1-44.19:14.B. of the *Code of Virginia* and 9 VAC 25-40-70 A.5 to establish and enforce more stringent water quality-based effluent limitations for total nitrogen or total phosphorus in IPs where those limitations are necessary to protect local water quality.

B. Recommended Actions:

Before setting concentration limits in IPs, permit staff should discuss with the permittee the options that are available to them. For example, significant dischargers that have not installed technology to comply with site-specific nutrient limits, and are not undergoing expansion, are not subject to the technology requirements listed in Table 2 of this guidance, and may meet their annual load limits in the WGP through implementing one or more of the following practices:

- installing treatment technology (the permittee may phase in the installation of treatment technology as part of its overall compliance strategy);
- acquiring compliance credits;
- reducing their discharged load through reclamation/reuse, land treatment, source reduction or (in the case of industrial facilities) other physical or operational changes (these are defined below);
- acquiring additional load limit through regionalizing (i.e., accepting the flow from other treatment plants), or
- bubbling (operating under a common registration with other facilities under common ownership or operation).

With the exception of acquiring compliance credits as an alternative to installing technology, owners/operators of new or expanding facilities may exercise most of the preceding options, such as maintaining their discharged load through reclamation/reuse in addition to the installation of technology. They may also acquire sufficient load reductions to offset increased waste loads from their facilities, and may also invoke § 62.1-44.19:16.A. of the *Code of Virginia*, when proposing treatment technology for their facilities: for example, an expanding facility could employ reclamation/reuse and acquire offsets in order to install less stringent nutrient control technology than would otherwise be required.

Permit staff should develop concentration limits for IPs according to one of the following scenarios; note that should the nutrient removal design criteria in subsequent plans/specifications or Concept Engineering Report differ from technology-based concentration limits already in the IP, DEQ shall initiate modification, or alternately, revocation and reissuance, of the IP to reflect the technology listed in the CTC (municipal facilities) or CER approval letter. This is applicable irrespective of whether the proposed technology is more, or less, stringent than in the IP.

1. If the facility is constructed, upgraded or expanded in accordance with grant or loan funding provided by DEQ, or if the permittee has made an affirmative statement regarding the performance of proposed nutrient removal equipment, concentration limits based on the available documentation (grant agreement, Preliminary Engineering Report etc.) should be included in the permit, with an effective date of January 1 following the issuance of a CTO for the nutrient removal equipment.

2. If the facility construction, upgrade or expansion is not undertaken with grant or loan funding from DEQ, AND if the permittee has not affirmed the performance level of equipment to be installed, AND if the permittee has not proposed or discussed alternatives to construction (that would be necessary to meet the facility load limit at design flow), concentration limits for municipal facilities should be included in the permit in accordance with the information provided in Tables 1 and 2 of this guidance, with an effective date of January 1 following the issuance of a CTO for the nutrient removal equipment.

By their nature, industrial facilities have a degree of operational flexibility that municipal facilities generally do not. They also vary in how their waste streams are generated and treated; consequently, it may be difficult to determine when an upgrade has occurred. The following guidelines are provided:

Physical or operational changes at industrial facilities would **not** be defined as upgrades, if directed toward either:

- The quantity or quality of the materials produced or services rendered;
- Operations, maintenance and repair of process equipment, or
- Repair or replacement (with a functionally similar item) of existing wastewater treatment equipment.

The following physical or operational changes at an industrial facility would **not** be defined as upgrades, even if directed exclusively toward reduction of nutrients in the effluent:

- Source reduction (such as, but not limited to, the elimination of phosphorus as a nutrient source for mixed liquor in the wastewater treatment process);
- Materials substitution (such as, but not limited to, changing cooling water additives), or
- Reclamation and reuse of wastewater or materials contained in wastewater.

Any physical upgrade of the industrial facility's treatment works requires the submittal of a Concept Engineering Report (CER); further, such upgrades are subject to the technology requirements and concentration limits.

As industrial facilities are often designed to manage wastes not normally encountered at a POTW, permit staff should recognize that nutrient removal technology may not achieve the reductions at industrial facilities that would be expected from comparable technology installed at a POTW, and concentration limits in IPs should be developed with this in mind, with an effective date of January 1 following the completion of construction for which a Concept Engineering Report has been approved by the DEQ regional office.

3. If the facility construction, upgrade or expansion is not undertaken with grant or loan funding from DEQ, AND the permittee has not affirmed the performance level of the equipment, BUT the permittee has proposed or discussed alternatives to construction (that would be necessary to meet the facility load limit at design flow), the IP may be issued without concentration limits, with the following condition included in the IP:

(municipal facilities, to be added to the standard CTC/CTO condition) Upon issuance of a CTC, DEQ staff shall initiate modification, or alternately, revocation and reissuance, of this permit, to include annual concentration limits based on the nutrient removal technology listed in the CTC. Upon issuance of a CTO, any nutrient removal facilities installed shall be operated to achieve design effluent levels.

(industrial facilities, as a stand-alone condition) This facility shall submit a Concept Engineering Report (CER) for DEQ approval prior to installation of any nutrient removal wastewater treatment technology. Upon approval of a CER for the installation of nutrient removal technology, DEQ staff shall initiate modification, or alternately, revocation and reissuance, of this permit, to include annual concentration limits based on the technology proposed in the CER. The permittee shall inform the DEQ regional office within 14 days of completion of construction of any project for which a CER has been approved. Upon completion of construction in accordance with a CER that has been approved by the DEQ regional office, any nutrient removal facilities installed shall be operated to achieve design effluent levels.

The following language should be included in the IP fact sheet language:

9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

(Industrial facilities only) § 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater.

All IPs that contain annual concentration limits should contain the following special condition:

Nutrient reporting calculations:

For each calendar month, the DMR shall show the calendar year-to-date average concentration (mg/L) calculated in accordance with the following formulae:

$$AC_{avg-YTD} = (\dot{a}_{(Jan-current\ month)} MC_{avg}) \div (\# \text{ of months})$$

where:

AC_{avg-YTD} = calendar year-to-date average concentration (mg/L)(parameter codes 805 and 806)

MC_{avg} = monthly average concentration (mg/L) as reported on DMR

The total nitrogen and phosphorus average concentrations (mg/L) for each calendar year (AC) shall be shown on the December DMR due January 10th of the following year. These values shall be calculated in accordance with the following formulae:

$$AC_{avg} = (\dot{a}_{(Jan-Dec)} MC_{avg}) \div 12$$

where:

AC_{avg} = calendar year average concentration (mg/L)(parameter codes 792 and 794)

MC_{avg} = monthly average concentration (mg/L) as reported on DMR

For Total Phosphorus, all daily concentration data below the quantification level (QL) for the analytical method used should be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.

For Total Nitrogen (TN), if none of the daily concentration data for the respective species (i.e., TKN, Nitrates/Nitrites) are equal to or above the QL for the respective analytical methods used, the daily TN concentration value reported shall equal one half of the largest QL used for the respective species. If one of the data is equal to or above the QL, the daily TN concentration value shall be treated as that data point is reported. If more than one of the data is above the QL, the daily TN concentration value shall equal the sum of the data points as reported.

Specific QLs should not be included in IPs.

The following language should be included in the IP fact sheet language:

Nutrient reporting calculations

Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

It should be noted that some facilities discharge very low concentrations of nutrients at very high volumes. For these facilities, DEQ recognizes that the previous reporting convention (treating concentration data below the QL as zero) would result in permittees reporting “no load discharged”. Under the new convention, it is theoretically possible for these permittees to report a load in excess of their limit in the WGP using similarly unquantifiable data. These cases should be handled on a case-by-case basis, and permittees should be encouraged to investigate analytical methods that enable their effluent to be quantified at very low concentrations.

Regional permit staff should include the following language in any IP that includes a Total Nitrogen or Total Phosphorus annual average concentration limit:

The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus are suspended during any calendar year in which the facility is considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level, provided that the following conditions have also been met:

- a. The facility has applied for (or renewed) participation, been accepted, maintained a record of sustained compliance and submitted an annual report according to the program guidelines;*
- b. The facility has demonstrated that they have in place a fully implemented environmental management system (EMS) with an alternative compliance method that includes operation of installed nutrient removal technologies to achieve the annual average concentration limitations, and*
- c. The E3/E4 designation from DEQ and implementation of the EMS has been in effect for the full calendar year.*

The annual average concentration limitations for Total Nitrogen and/or Phosphorus, as applicable, are not suspended in any calendar year following a year in which the facility failed to achieve the annual average concentration limitations as required by b. above.

The following language should be included in the IP fact sheet language:

Suspension of concentration limits for E3/E4 facilities

9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

When a permittee applies for E3/E4 status, it may request which (or all) activities are to be designated as E3/E4 participants, subject to DEQ approval. The conditions listed above apply to the activity (or activities) specifically designated by DEQ.

5. Requirements to offset additional discharged pounds of nitrogen and phosphorus:

A. Legislative requirement:

§ 62.1-44.19:15. A. of the *Code of Virginia* requires owners or operators of expanded facilities to offset any increase in delivered total nitrogen and delivered total phosphorus loads resulting from any expansion beyond the waste load allocations or permitted design capacity as of July 1, 2005, and requires owners or operators of new facilities to offset the entire delivered total nitrogen and total phosphorus loads discharged.

§ 62.1-44.19:15. B and C of the *Code of Virginia* outline four options for obtaining such offsets:

- Acquisition of all or a portion of the waste load allocations from one or more permitted facilities in the same tributary;
- Acquisition of nonpoint source load allocations through the use of best management practices acquired through a public or private entity acting on behalf of the land owner. Such best management practices shall achieve reductions beyond those already required by or funded under federal or state law, or the Virginia tributaries strategies plans, and shall be installed in the same tributary in which the new or expanded facility is located and included as conditions of the facility's IP;
- Acquisition of allocations from the Water Quality Improvement Fund, or
- Acquisition of allocations in accordance with the terms of the WGP or through such other means as may be approved by the Department on a case-by-case basis.

Currently, OWPP, with assistance from DCR, is developing the mechanisms by which permittees would comply with § 62.1-44.19:15.B and C.

B. Recommended Actions:

Owners/operators of expanded facilities must offset any load in excess of their waste load allocations (for facilities that are significant dischargers) or "permitted design capacity" (for facilities that are non-significant

dischargers). Owners/operators of new facilities must offset their entire load. **Several categories of facilities will not require offset conditions in their IPs, if these facilities:**

- With the submittal of a registration statement, provide evidence that a waste load allocation was acquired from a significant discharger whose loading limits have become effective (in this case, the registration list and DMRs of the affected facilities will be revised to reflect the amount and term of the waste load acquisition);
- Hold a VPA permit that was issued prior to July 1, 2005, and are treating and land applying sewage (see Appendix C of this guidance)
- Acquired waste load allocations or permitted design capacity through regionalization;
- Are to be “bubbled” with other facilities in the same tributary under common ownership or operation, or
- Purchase offsets through the Water Quality Improvement Fund.

The load limits of these facilities will be included in the registration list, according to the mass of nutrients acquired.

Until the final procedures for review and approval of offsets have been developed by OWPP, regional staff should include the following language in IPs for owners/operators that are required to offset increased nutrient waste loads from their facilities, whether by new construction or by expansion:

Offset Requirement

“Any annual Total Nitrogen and/or Total Phosphorus loadings above and beyond those permitted prior to July 1, 2005 shall be offset subject to a DEQ-approved trading contract prepared in accordance with § 62.1-44.19:12 - :19 of the Law and 9 VAC 25-820-10 et seq., and which includes, but is not limited to, the following:

- a. Discussion of the source of the acquired allocations,*
- b. Discussion of other permitted facilities involved in the trade, and*
- c. Discussion of any non-point source allocations acquired.*

“This proposal shall provide for the waste loads that are projected to be discharged on an annual basis for the term of this permit, and shall be approved prior to the commencement of discharge from the new or expanded facility. Once approved, the conditions of the proposal pertaining to verification of non-point allocations acquired, or self-offsetting practices implemented, become an enforceable part of this permit.”

Once the final procedures for review and approval of offsets have been developed by OWPP, regional staff should insert the following language in IPs for permittees that have elected to acquire non-point load reductions, or have submitted a proposal to offset their waste load themselves:

“The permittee has elected to offset the annual Total Nitrogen and/or Total Phosphorus loadings above and beyond those permitted prior to July 1, 2005 through (the acquisition of non-point source load reductions) or (through a proposal approved by the Department that involves (insert brief summary here)). Records of this acquisition shall be maintained on site by the permittee and are subject to field verification by, or on behalf of, the Department. Should the reductions not be verifiable, or should they not be fully achieved, the permittee shall be required to obtain any additional waste load or load reductions necessary to offset the waste load discharged by the permittee in the calendar year for which the load reductions were acquired .

The following language should be included in the IP fact sheet language:

Offset Requirement

Rationale: The Virginia General Assembly, in its 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

An example of an offset calculation follows:

A facility with a design flow of 0.40 MGD installed SOA treatment with grant money in 2000 and was now proposing an expansion to 0.60 MGD: Again referring to Table 2,

| | | |
|--|----------|-----------------------|
| <i>Proposed TN Load = 3.00 mg/l x 0.60 MGD x 8.3438 x 365 days/yr</i> | <i>=</i> | <i>5482 pounds/yr</i> |
| <i>- Current TN Load = 3.00 mg/l x 0.40 MGD x 8.3438 x 365 days/yr</i> | <i>=</i> | <i>3655 pounds/yr</i> |
| <hr/> | | |
| <i>Required offset for expanded discharge</i> | <i>=</i> | <i>1827 pounds/yr</i> |
| | | |
| <i>Proposed TP Load = 0.30 mg/l x 0.60 MGD x 8.3438 x 365 days/yr</i> | <i>=</i> | <i>548 pounds/yr</i> |
| <i>- Current TP Load = 0.30 mg/l x 0.40 MGD x 8.3438 x 365 days/yr</i> | <i>=</i> | <i>365 pounds/yr</i> |
| <hr/> | | |
| <i>Required offset for expanded discharge</i> | <i>=</i> | <i>183 pounds/yr</i> |

The permittee in this example would have to demonstrate as part of its WGP registration that the waste load allocations had been secured and could be proven prior to the commencement of discharge from the new or expanded facility.

6. Facilities that were formerly subject to the Nutrient Enriched Waters Policy:

When the Nutrient Enriched Waters policy was promulgated, facilities discharging to NEW-designated waters, with design flows of ≥ 1.0 MGD were assigned a technology-based Total Phosphorus monthly average concentration limit of 2 mg/l. This was done with little, if any, quantification of phosphorus in the effluent of the facilities affected.

Many of these facilities were later determined to be significant dischargers of nutrients to the Chesapeake Bay; these are subject to the WGP, and are discussed later in this section; however, several industrial facilities were NOT classified as significant dischargers. Regional staff may delete the phosphorus limits from the IPs of non-significant industrial facilities, if they are able to provide the following documentation in the fact sheet (and if the region cannot provide this documentation, OWPP recommends against deleting the limit):

- The limit is technology-based (backsliding is permissible);
- 9 VAC 25-40-30-D exempts facilities located in the Chesapeake Bay watershed from this limit;
- The facility did not install treatment in order to comply with the limit;
- The facility has not undertaken any process or site management changes in order to comply with the limit, and
- Calculations using existing effluent data show that the facility is not a significant discharger.
- In any subsequent expansion resulting in discharged annual waste loads or above 2,300 pounds per year of TN or 300 pounds per year of TP, these facilities shall register for WGP coverage and will be limited to the "permitted design capacity" calculated at the time the NEW limit was deleted from the IP.

IPs for significant dischargers with Total Phosphorus limitations based on a Nutrient Enriched Waters designation should contain the following condition as appropriate (see note below):

Watershed General Permit Controls

Upon the effective date of the permittee's Watershed General Permit Total Phosphorus limitation, the monthly average and weekly (choose one average or maximum) Total Phosphorus loading limitations contained herein are waived. This permit shall receive annual average concentration limits to reflect technology installed by the permittee for the control of total phosphorus, whether by new construction, expansion, or upgrade.

The following language should be included in the IP fact sheet language:

Watershed General Permit Controls

9 VAC 25-40-30 D exempts facilities located in the Chesapeake Bay watershed from Total Phosphorus loading limits that are based on the receiving stream's previously being classified as Nutrient Enriched Waters, on the basis that more stringent annual loading limits (i.e., from the Watershed General Permit) apply to such facilities.

Note that this is only applicable to limits based on a Nutrient Enriched Waters designation. It is not applicable to any limitations required under a Special Standards designation (9 VAC 25-260-310) (e.g. Policy for the Potomac Embayments, Occoquan Watershed Policy, Chickahominy watershed above Walker's Dam, etc.) or any other more stringent limitations necessary to maintain local water quality.

IPs for these facilities should include annual concentration limits for Total Phosphorus based on the technology installed, including cases in which the technology was installed to meet limits that were based on a Nutrient Enriched Waters designation, and these annual concentration limits should be included in the IP in the first permit reissuance or modification following the effective date of the WGP total phosphorus limit. These limits should take effect in the first calendar year following the year in which the IP was modified or reissued.

In deriving these limits, permit writers should research any applicable grant agreement documentation, statements regarding the performance of the technology by the permittee or design engineer, CTOs issued for the nutrient removal technology or back-calculating from the WLA assigned to the facility.

Permit writers should note that while facilities operating under a "bubbled" registration receive a degree of flexibility regarding compliance with the aggregate loading limit assigned to the joint owner/operator, "bubbling" does not relieve the owner/operator of the individual facilities from the obligation to operate nutrient removal facilities as designed and installed.

The following reopener should be included in IPs that are issued, reissued or modified pursuant to this guidance:

Nutrient Reopener

This permit may be modified or, alternatively, revoked and reissued:

- a. *If any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements;*

- b. *To incorporate technology-based effluent concentration limitations for nutrients in conjunction with the installation of nutrient control technology, whether by new construction, expansion or upgrade, or*
- c. *To incorporate alternative nutrient limitations and/or monitoring requirements, should:*
 - i. *the State Water Control Board adopt new nutrient standards for the water body receiving the discharge, including the Chesapeake Bay or its tributaries, or*
 - ii. *a future water quality regulation or statute require new or alternative nutrient control.*

The following language should be included in the IP fact sheet language:

Nutrient Reopener

9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

7. Regionalization issues:

A. Legislative requirement:

§ 62.1-44.19:14.C.1 of the *Code of Virginia*, in describing the waste load allocations in the WGP, states:

“...An owner or operator of two or more facilities located in the same tributary may apply for and receive an aggregated waste load allocation for total nitrogen and an aggregated waste load allocation for total phosphorus for multiple facilities reflecting the total of the water quality-based total nitrogen and total phosphorus waste load allocations established for such facilities individually.”

While this language actually addresses the aggregated or “bubbled” WGP registration of facilities under common ownership or operation that continue to operate under separate IPs, it is reasonable for a regional discharger, formed from the consolidated treatment of wastewater formerly treated by facilities located in the same tributary, to aggregate the waste load allocations attributed to the affected facilities. The practice is extended (albeit partially) to the assumption of loads from facilities with permitted design capacities.

B. Recommended Actions:

Loading limits:

An owner who consolidates the treatment provided by two or more facilities, located in the same tributary, into a single regional facility, may apply for and receive an aggregated mass load limit for delivered total nitrogen and an aggregated mass load limit for delivered total phosphorus, subject to the following conditions:

- If all of the affected facilities have waste load allocations listed in Subsection C of Sections 50, 60, 70, 110 or 120 of the Water Quality Management Planning Regulation (9 VAC 25-720), the aggregate mass load limit shall be calculated by adding the waste load allocations of the affected facilities. The regional facility shall be eligible to generate credits.

- If any, but not all, of the affected facilities has a waste load allocation listed in Subsection C of Sections 50, 60, 70, 110 or 120 of the Water Quality Management Planning Regulation (9 VAC 25-720), the aggregate mass load limit shall be calculated by adding:
 - Waste load allocations of those facilities that have wasteload allocations listed in Subsection C of Sections 50, 60, 70, 110 or 120 of the Water Quality Management Planning Regulation (9 VAC 25-720),
 - Permitted design capacities assigned to affected industrial facilities, and
 - Loads from affected sewage treatment works that do not have a waste load allocation listed in Subsection C of Sections 50, 60, 70, 110 or 120 of the Water Quality Management Planning Regulation (9 VAC 25-720). These loads are considered the lesser of a previously established permitted design capacity or the loads calculated by the following formulae:

$$\text{Nitrogen Load (lbs/day)} = \text{flow (expressed as MGD to the nearest 0.01 MGD)} \times 8.0 \text{ mg/l} \times 8.3438 \times 365 \text{ days/year}$$

$$\text{Phosphorus Load (lbs/day)} = \text{flow (expressed as MGD to the nearest 0.01 MGD)} \times 1.0 \text{ mg/l} \times 8.3438 \times 365 \text{ days/year}$$

Flows used in the preceding formulae shall be the design flow of the treatment works from which the affected facility currently discharges.

The regional facility shall be eligible to generate credits based on the aggregate mass load limits.

An example of this follows; consider a significant discharger that expands to accept the flows currently treated by two other POTWs located in the same tributary, as well as an industrial discharger.

| | | |
|---|----------------------|------------------|
| <i>Initial Design Flow of significant discharger:</i> | <i>4.00 MGD</i> | |
| <i>Nitrogen WLA and concentration:</i> | <i>48,729 lbs/yr</i> | <i>4.00 mg/l</i> |
| <i>Phosphorus WLA and concentration:</i> | <i>3,655 lbs/yr</i> | <i>0.30 mg/l</i> |

Design flows for STPs to be consolidated into the regional facility: 0.40 MGD and 0.20 MGD

Permitted design capacity for industrial discharger: 2,000 lbs/yr total nitrogen, 500 lbs/yr total phosphorus

Nitrogen WLA for regional STP = 48,729 + 2000 + [(0.40+0.20)(8.00 mg/l x 8.3438 x 365)] = 65,347 lbs/yr

Phosphorus WLA for regional STP = 3,655 + 500 + [(0.40+0.20)(1.00 mg/l x 8.3438 x 365)] = 5,982 lbs/yr

These limits would be included in the WGP registration list and the regional facility would be eligible to generate credits based on the aggregate mass load limits.

Concentration limits for the regional facility would be no less stringent than those for the existing significant discharger, and could be more stringent depending on the technology installed at the regional facility.

- If none of the affected facilities have a waste load allocation in Subsection C of Sections 50, 60, 70, 110 and 120 of the Water Quality Management Planning Regulation (9 VAC 25-720), the aggregate mass

load limit shall be calculated by adding the respective permitted design capacities for the affected facilities. The regional facility shall not be eligible to generate credits.

An example of this follows; consider several non-significant POTWs, currently treating to secondary standards, which are replaced by a single regional POTW.

Design flows for STPs to be consolidated into the regional facility: 0.30, 0.30, and 0.20 MGD, respectively

$$\begin{aligned} \text{Total Nitrogen} &= 18.70 \text{ mg/l} \times 0.80 \text{ MGD} \times 8.3438 \times 365 \text{ days/yr} &= & \underline{45560 \text{ pounds/yr}} \\ \text{Total Phosphorus} &= 2.50 \text{ mg/l} \times 0.80 \text{ MGD} \times 8.3438 \times 365 \text{ days/yr} &= & \underline{6091 \text{ pounds/yr}} \end{aligned}$$

These limits would be included in the WGP registration list and the owner/operator of the facility would not be eligible to generate credits.

Concentration limits for this facility would be determined in a manner similar to that for a new or expanded facility.

In most cases, offsets should not be required for a regional facility unless the new facility will have a design flow significantly greater than the sum of the flows (in the case of STPs) or loads (in the case of industrial facilities) consolidated. In these cases, the permittee may have the option of employing reclamation/reuse or selecting treatment sufficiently stringent to ensure that the load resulting from the increased flow does not exceed the sum of the existing loads. Contact OWPP if you have any questions regarding this.

The following language should be used in IPs of permittees who are reasonably expected to terminate its discharge and connect to a regional facility:

Should (insert name of permittee) terminate its discharge by connecting to (insert name of regional facility), (insert name of permit holder of regional facility) may apply for and receive an additional mass load limit in accordance with Part I.B.3. of 9 VAC 25-820-70. The additional mass load limits for nitrogen and phosphorus have been determined to be as follows (if calculated, provide formulae below):

$$\begin{aligned} \text{Total Nitrogen:} &= [] \text{ lbs/year} \\ \text{Total Phosphorus:} &= [] \text{ lbs/year.} \end{aligned}$$

These nutrient loadings are to be assigned to the (permit holder of regional facility) upon transfer of flow from the (insert name of permittee) and termination of this permit.

8. Public Notice Requirements:

A. Legislative and Regulatory Requirements:

§62.1-44.19:14 C.6 of the Code requires DEQ to establish “A procedure for efficiently modifying the lists of facilities covered by the WGP where the modification does not change or otherwise alter any waste load allocation or delivery factor adopted pursuant to the Water Quality Management Planning Regulation (9 VAC 25-270) or its successor, or an applicable total maximum daily load. The procedure shall also provide for modifying or incorporating new waste load allocations or delivery factors, including the opportunity for public notice and comment on such modifications or incorporations...”

Part I.I. of the WGP contains requirements that address modification or incorporation of new waste load allocations or delivery factors; however, in most cases, adequate notice will have been provided to the public through one of the following means:

1. A permittee petitions DEQ-Chesapeake Bay Office (CBO) for an expanded waste load allocation; as part of the response to this petition, DEQ-CBO subjects the petition to a public review and comment period. No further action is required of regional staff in this instance.
2. DEQ changes the delivery factors in the nutrient trading regulation (and, by extension, the delivered WLAs in the WGP); this would probably be undertaken in conjunction with modification of the WGP and would already be subject to a public notice and comment requirement. Again, no further action is required of regional staff.
3. An owner/operator submits a registration statement (or a modified registration statement) for WGP coverage in conjunction with an individual VPDES application for proposed new construction or expansion. In this case, the regional office will submit the IP to public notice and comment.

It is possible that an owner/operator may submit a registration statement (or a modified registration statement) for WGP coverage, independently of an individual VPDES application for proposed new construction or expansion. Such a submittal may be predicated on a decision by an owner/operator to “bubble” facilities currently operating under independent WGP registrations, regionalization (with no attendant plant expansion, if reclamation/reuse will be employed) or a change in how a new or expanding facility offsets its discharge. If the regional office receives such a registration statement, contact OWPP for assistance.

B. Recommended Actions:

The following language should be added to public notices for permittees subject to 9 VAC 25-820:

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.

(add this sentence for new facilities that were not operating under a VPA permit prior to, and as of, July 1, 2005)

As a condition of this permit, the permittee will be required to offset in advance, any loads of total nitrogen or total phosphorus that are expected to be discharged in a given calendar year.

(add this sentence for new facilities that were operating under a VPA permit prior to, and as of, July 1, 2005)

The permittee has been assigned a waste load allocation in accordance with the 2007 amendment to Title 62.1-44.19.15 of the Code of Virginia; this allocation cannot be traded or assigned to another facility, and the permittee will be required to achieve nutrient reductions equivalent to state-of-the-art, whether by nutrient removal technology or by reclamation/reuse.

(add this sentence for expanding facilities only)

As a condition of this permit, the permittee will be required to offset in advance, any loads of total nitrogen or total phosphorus that are expected to be discharged in a given calendar year, in excess of those levels previously allowed by the facility's VPDES permit. The permittee may opt (has opted) to install nutrient removal treatment that will maintain the existing load of nutrients discharged.

(add this language when the facility is, or will be, registered for coverage under the WGP with other facilities under common ownership or operation; in other words, “bubbled”)

This facility is registered for coverage under the WGP with other facilities under common ownership or operation in the (name of tributary) watershed.

(insert this language if applicable) (name of owner or operator) will address load increases associated with new or expanded discharges from this facility by managing the aggregate delivered load discharged from all of the facilities under common ownership or operation in the (name of tributary) watershed..

(add this language when the facility assumes the influent flow from other permitted facilities; in other words, regionalizes)

This facility will treat wastewater currently being directed to other permitted treatment works. When the flow influent to (list facilities) is redirected to (name of permittee) and the discharge permits associated with these facilities has (have) been terminated, all or part of the delivered loads associated with these facilities will be assigned to (name of permittee) in the General VPDES Watershed Permit registration list to reflect this.

(add this language when the facility opts to purchase allocations from other permitted facilities)

This facility has elected to offset its future nutrient loads by acquiring waste load allocations from (insert name of seller(s)). The delivered load limits(s) of (insert name of seller(s)) have been reduced in the General VPDES Watershed Permit registration list to reflect this acquisition.

(add this language when the facility opts to purchase non-point reductions)

This facility has elected to offset its future nutrient loads by acquiring load reductions that were achieved by non-point best management practices. The inspection and verification of these reductions will be carried out pursuant to this individual VPDES permit.

(add this language when the permittee opts to achieve its own offsets; note that this should be occurring only when the facility has made a bona fide demonstration that it could not offset the proposed discharge either by purchasing a waste load allocation from another permitted facility or by purchasing non-point load reductions)

The permittee has elected to offset its future nutrient loads through a plan submitted to, and approved by, the Department that involves (insert brief summary here). The inspection and verification of this offset will be carried out pursuant to this individual VPDES permit.

(add this language when the facility opts to purchase allocations from the WQIF; note that this should be occurring only when the facility has made a bona fide demonstration that it could not offset the proposed discharge either by purchasing a waste load allocation from another permitted facility or by purchasing non-point load reductions)

This facility has elected to offset its future nutrient loads by acquiring load reductions through the Water Quality Improvement Fund, and has provided evidence that it attempted, but was unable, to acquire the load reductions by other means.

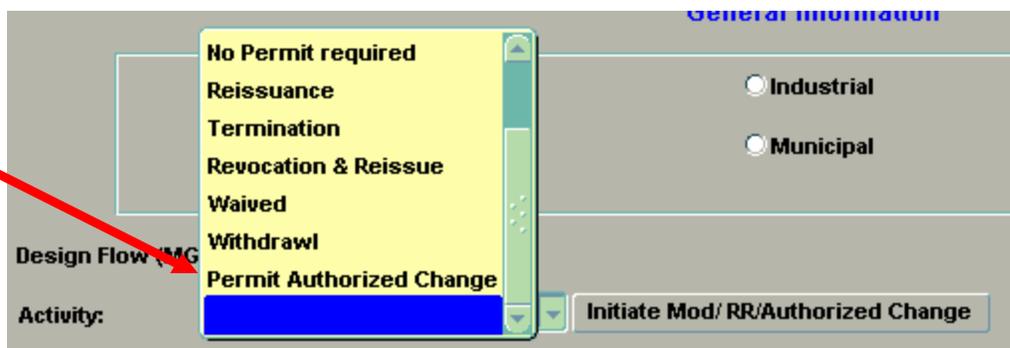
9. Elimination of duplicative reporting requirements in IPs:

As previously stated in this guidance, the monitoring and reporting requirements in the WGP supersede those in IPs where the monitoring is not necessary to demonstrate compliance with an effective limit in the IP. The limits should be deleted from IP DMRs in accordance with the following procedure (it is not necessary to modify the permit to accomplish this; the IP was superseded at the time the WGP became effective):

Note that the Permit Authorized Change feature in CEDS is being used to generate a new DMR, enable appropriate limitations and reporting requirements to be uploaded to PCS and to properly populate DMR “skeleton” records in CEDS. 9 VAC 25-820-10 et seq., and the enabling legislation allows for these changes without the IP being modified. The IP should not be actually modified under these procedures. If the permit is open for other reasons or if the permittee requests the changes and pays the appropriate modification fee, then requirements may be removed as appropriate under DEQ’s regular permit modification procedures. Removal of any limits, schedules of compliance or special conditions from the IP would not be considered a minor modification under 9 VAC 25-31-400.

It is critical that these CEDS procedures be followed consistently because of the implications on DEQ uploads to EPA’s PCS system and the e-DMR program. It is strongly recommended that each regional office designate a single staff member to enter these changes and that that staff member coordinate closely with the regional compliance auditor and the PCS coordinator (Joanne Lam) in central office.

- 1) In CEDS, query by permit number for the active record.
- 2) User may wish to print the data in the events table, as the data must be re-keyed into the application record.
- 3) Click on the Initiate Mod/RR/Authorized Change button located on the “General Information” screen.
- 4) Click “OK” to create a new application record.
- 5) Query the application record and change the activity type on the general information screen to “permit authorized change”.



- 6) Modify the nutrient trading parameter data based on the individual permit requirement. DO NOT CHANGE ANY DATES (i.e., limit start date, limit end date, first DMR due date, or monitor start date). If during this process the permit writer finds incorrect monitoring start dates or first DMR due dates, please contact the CEDS business analyst for further instructions.
- 7) Users will be required to click the billing verification check box on the billing screen.

The image shows a screenshot of a web form titled "Billing Information". The form contains several input fields: "Customer Type" (a dropdown menu), "Tax Payer ID" (a text box), "Billing Address" (three stacked text boxes), "Contact Name" (a text box with a dropdown arrow), "Contact Job Title" (a text box), and "Contact Phone No." (a text box). At the bottom of the form, there is a checkbox labeled "Has this Billing Information been verified by the Permit Writer". A red arrow points from the top right towards this checkbox.

- 8) Permit writers may also take advantage of the permit authorized change to delete from CEDS (**again, not the IP unless it is open for other reasons or if the permittee requests the changes and pays the appropriate modification fee**) any compliance schedule events that were superseded by the WGP.
- 9) Key in the event dates into the events table exactly as they are in the active record EXCEPT FOR THE DATE SIGNED (DTSIGN). The date signed is the trigger that will move the permit authorized change record from application to active. In order for the record to move from application to active the date signed date must be less than or equal to the current date; OWPP recommends that the permit writer use the later of 1/1/07 or the date that coverage was granted under the WGP. Permit writers should also type "Permit modified to eliminate parameters monitored through WGP" in the comments field located beside DTSIGN and in the comment field on the general information screen.
- 10) Notify the compliance auditor so that they may verify the accuracy of the skeleton records in CEDS and the eDMR system.
- 11) Notify the PCS coordinator (Joanne Lam) when changes have been made for major permits and provide the parameter codes and their modification status indicator of "deleted" or "changed" to assist the updates and to avoid inaccurate data/violations in PCS.

When using this table for screening IP applications and preliminary engineering reports, work from left to right; the four left columns are provided by the permit writer, the four right columns outline the applicable requirements for the given situation. For facilities that were operating under a VPA permit prior to, and as of, July 1, 2005, refer to Appendix C.

| Facility status | Existing design capacity (or equivalent load) | Proposed design capacity (or equivalent load) | Upstream or downstream of fall line | Requirement to register for WGP | Technology requirements * | Annual loading limits | Offset required |
|-----------------|---|---|-------------------------------------|--|---------------------------|--|---|
| New | N/A | Q < 0.04 MGD | Either | None | * | None | None |
| | | 0.10 MGD > Q ≥ 0.04 MGD | Either | Must submit registration statement when applying for new IP | BNR | Limit of zero in GP | 100% of proposed load |
| | | 0.50 MGD > Q ≥ 0.10 MGD | Upstream | | SOA | | |
| | | | Downstream | | | | |
| Q ≥ 0.50 MGD | Either | | | | | | |
| Expanding | Q < 0.04 MGD | Q < 0.04 MGD | Either | None | * | None | None |
| | | 0.10 MGD > Q ≥ 0.04 MGD | Either | Must submit registration statement when applying for modified or reissued IP | * | “permitted design capacity” calculated by regional permit staff and provided to Central Office for inclusion as limit in WGP | 100% of proposed load above “permitted design capacity” calculated by regional permit staff |
| | | 0.50 MGD > Q ≥ 0.10 MGD | Upstream | | BNR | | |
| | | | Downstream | | SOA | | |
| | Q ≥ 0.50 MGD | Either | BNR | | | | |
| | 0.10 MGD > Q ≥ 0.04 MGD | 0.10 MGD > Q ≥ 0.04 MGD | Either | | BNR | | |
| | | 0.50 MGD > Q ≥ 0.10 MGD | Upstream | | BNR | | |
| | | Downstream | SOA | | | | |
| | 0.50 MGD > Q ≥ 0.10 MGD | 0.50 MGD > Q ≥ 0.10 MGD | Upstream | BNR | | | |
| | | Downstream | | | | | |
| Q ≥ 0.50 MGD | Q ≥ 0.50 MGD | Either | SOA | SOA | Loading limits in WGP | 100% of proposed load above limit in WGP | |
| Existing | Q < 0.10 MGD | N/A | Either | None | * | None | None |
| | 0.50 MGD > Q ≥ 0.10 MGD | | Upstream | None | * | None | |
| | | | Downstream | Prior to 1/1/07 | * | Loading limits in WGP | |
| | Q ≥ 0.50 MGD | | Either | | | | |

- All discharges must be evaluated with regard to E3/E4 participation, currently installed technology, federal effluent guidelines or local water quality considerations irrespective of status, design flow or location. **Unless the permittee provides a demonstration to the contrary, new and expanding facilities are required to install the appropriate treatment.** Technology based concentration limits for applicable new and expanded facilities and existing facilities performing upgrades are 8.00 mg/l TN and 1.00 mg/l TP for facilities installing BNR and 3.00 mg/l TN and 0.30 mg/l TP for facilities installing SOA.

SAMPLE TRANSMITTAL LETTER FOR REGISTRATION STATEMENT

Name and address -

RE: Registration for the General VPDES Permit for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia

Dear VPDES Permittee (or applicant):

9 VAC 25-820-10 et seq., General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia was approved by the State Water Control Board on September 6, 2006 and became effective on November 1, 2006. The permit that is contained in the regulation has an effective date of January 1, 2007, and will expire on December 31, 2011. The permit regulation may be found at <http://www.deq.virginia.gov/vpdes/pdf/9VAC25-820-NutrientDischargesGP-09-06-06.pdf>.

In addition to the permit, registration for coverage under this WGP is required by law of every owner or operator of a new or expanding facility at the time he makes application with the Department for a new discharge or expansion that results in a discharge of 40,000 gallons or more per day from a sewage treatment work, or an equivalent load from an industrial facility.

(for applications for new construction and expansions, that are not currently accounted for in an permit, use the following paragraph)

The application for your permit cannot be processed without your concurrent registration for WGP coverage. Please submit the registration statement in order that permit processing may continue. Instructions for completing the registration form and an application fee form are included in this package. The application fee for this WGP is \$600.00. Please follow the instructions on the fee form for submitting this fee.

(for new construction and expansions that are already accounted for in an permit, use the following paragraph)

New or expanding facilities that have not received a Certificate to Construct prior to July 1, 2005 are subject to this requirement. As the law and regulation require registration by the permit effective date (January 1, 2007), we request your immediate submittal of the registration statement. Instructions for completing the registration form and an application fee form are included in this package. The application fee for this WGP is \$600.00. Please follow the instructions on the fee form for submitting this fee.

If you have any questions, please contact DEQ's Office of Water Permit Programs at (804) 698-4182.

Sincerely,

Permit Writer

Attachments:

- Registration Statement and instructions
- Permit Fee Form
- Summary of WGP monitoring and reporting requirements
- Summary of compliance plan requirements

SUMMARY OF MONITORING REQUIREMENTS

1. Discharges shall be monitored by the permittee, during weekdays, as specified below:

| | | | |
|--|---|-------------------|---------------------------------|
| STP design flow | >20.000 MGD | 1.000- 19.999 MGD | 0.040-0.999 MGD |
| Effluent TN load limit for industrial facilities | >100000 lb/yr | | 487-99999 lb/yr |
| Effluent TP load limit for industrial facilities | >10000 lb/yr | | 37-9999 lb/yr |
| Parameter | Sample Type and Collection Frequency | | |
| Flow | Totalizing, Indicating and Recording | | |
| Nitrogen Compounds (Total Nitrogen = TKN + NO₂⁻ (as N) + NO₃⁻ (as N)) | 24 HC 3 Days/Week | 24 HC 1/Week | 8 HC 2/Month, > 7 days apart |
| Phosphorus Compounds (Total Phosphorus and Orthophosphate) | 24 HC 3 Days/Week | 24 HC 1/Week | 8 HC 2/Month, > 7 days apart |

2. Monitoring for compliance with effluent limitations shall be performed in a manner identical to that used to determine compliance with effluent limitations established in the individual VPDES permit, and monitoring or sampling shall be conducted according to analytical laboratory methods approved under 40 CFR Part 136 (2006), unless other test or sample collection procedures have been requested by the permittee and approved by the Department in writing. Monitoring may be performed by the permittee at frequencies more stringent than listed above; however, the permittee shall report all results of such monitoring.

3. Loading values reported in accordance with Part I, Paragraphs E and F of this WGP shall be calculated and reported to the nearest pound without regard to mathematical rules of precision.

4. Data shall be reported on a form provided by the Department, by the same date each month as is required by the facility's permit. The total monthly load shall be calculated in accordance with the following formula;

$$ML = ML_{avg} * d$$

where:

ML = total monthly load (lb/mo)

ML_{avg} = monthly average load as reported on DMR (lb/d)

d = number of discharge days in the calendar month

$$ML_{avg} = \frac{\sum DL}{s}$$

where:

DL = daily load, = daily concentration (expressed as mg/l to the nearest 0.01 mg/l) multiplied by the flow volume of effluent discharged during the 24-hour period (expressed as MGD to the nearest 0.01 MGD), multiplied by 8.3438 and rounded to the nearest whole number to convert to pounds per day (lbs/day)

s = number of days in the calendar month in which a sample was collected and analyzed

All daily concentration data below the quantification level (QL) for the analytical method used should be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.

The total year-to-date mass load shall be calculated in accordance with the following formula:

$$AL-YTD = \sum_{(Jan-current\ month)} ML$$

where:

AL-YTD = calendar year-to-date annual load (lb/yr)

ML = total monthly load (lb/mo) as reported on DMR



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

NOV 30 2008

Ms. Ellen Gilinsky, Ph.D.
Director of Division Water Quality Programs
Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Dear Ms. Gilinsky:

On September 6, 2006, the State Water Control Board approved the final regulation entitled "General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia," 9 VAC 25-820-10 et seq. On September 20, 2006, the Virginia Department of Environmental Quality (VADEQ) forwarded for the Environmental Protection Agency (EPA) review a submission that included the general permit regulation, fact sheet, and registration statement. EPA expects to complete this review within ninety (90) days of VADEQ's September 20, 2006 submission.

As part of this review, EPA requests VADEQ's position on the applicability of 9 VAC 25-820-30 ("Relation to existing VPDES permits issued in accordance with 9VAC 25-31"). Specifically, EPA is interested in clarifying whether and how the nutrient effluent limits contained in the general permit affect enforceable nutrient limits that are already contained in individual VPDES permits. Following is the italicized text of 9 VAC 25-820-30 A., B., and C, followed by EPA's interpretation of these regulatory provisions.

A. This general permit shall control in lieu of conflicting or duplicative mass loading effluent limitations, monitoring or reporting requirements for total nitrogen and total phosphorus contained in individual VPDES permits for facilities covered by this general permit, where these requirements are based upon standards, criteria, waste load allocations, policy, or guidance established to restore or protect the water quality and beneficial uses of the Chesapeake Bay or its tidal tributaries.

EPA interprets 9 VAC 25-820-30.A to mean that mass loading effluent limits for total nitrogen or total phosphorus ("nutrient limits") in individual VPDES permits that are currently in effect and enforceable would remain so until the effective date of the nutrient limits in the general permit (i.e., no later than the January 1, 2011 "final effluent limits effective date" in Part I, Section A of the General Permit). Effective nutrient limits in individual permits would include water quality based limits such as prescribed by basin management plans, nutrient enriched waters designations, and Total Maximum Daily Loads (TMDLs) or Water Quality Improvement Fund (WQIF) projects or other grant stipulations that imposed nutrient treatment performance characteristics being expressed as mass effluent limitations.



B. This general permit shall not control in lieu of more stringent water quality-based effluent limitations for total nitrogen or total phosphorus in individual permits where those limitations are necessary to protect local water quality, or more stringent technology-based effluent concentration limitations in the individual permit for any facility that has installed technology for the control of nitrogen and phosphorus whether by new construction, expansion, or upgrade.

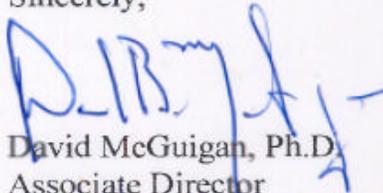
EPA interprets 9 VAC 25-820-30.B to mean that the nutrient limits in the general permit will not supercede either (a) more stringent water-quality based nutrient limits in individual permits needed to protect local water quality, or (b) more stringent technology-based effluent concentration limits in individual permits for facilities that have installed nutrient control technology.

C. The compliance schedule in this general permit shall control in lieu of conflicting or duplicative schedule requirements contained in individual VPDES permits for facilities covered by this general permit, where those requirements address mass loading of total nitrogen or total phosphorus and are based upon standards, criteria, waste load allocations, policy, or guidance established to restore or protect the water quality and beneficial uses of the Chesapeake Bay or its tidal tributaries.

EPA interprets 9 VAC 25-820-30.C to mean that the compliance schedule in the general permit replaces conflicting or duplicate compliance schedules for nutrient limits in individual VPDES permits, as specified. EPA further interprets this provision as only applying to individual permits' compliance schedules in which the final compliance date has not passed as of the effective date of the general permit.

It would be helpful to EPA's review of the general permit to know whether our interpretation of the regulatory language above accords with VADEQ's position. If you have any questions or comments on this matter, please feel free to contact me or Mark D. Smith at 215-814-3105 of my staff.

Sincerely,



David McGuigan, Ph.D.
Associate Director
Office of NPDES Permits & Enforcement

Permitting strategy for Virginia Pollution Abatement (VPA) facilities that are located in the Chesapeake Bay watershed, and that apply for VPDES permits.

Background:

Several facilities in the Chesapeake Bay Watershed are authorized to treat and dispose of domestic sewage under VPA permits. For a variety of reasons (lack of sufficient acreage, impacts to groundwater etc.), these facilities may apply for VPDES permits. Under the WGP regulation, such facilities were considered new facilities and would have to offset all of their discharged loads in spite of the fact that the wastewater treatment works may have been existence for decades.

In 2007, the General Assembly passed, and Gov. Kaine signed into law, legislation that authorized the owners/operators of such facilities to petition the Board for a waste load allocation, subject to the following conditions:

- The VPA permit was issued before July 1, 2005;
- The allocation does not exceed the facility’s permitted design capacity as of July 1, 2005;
- The waste treated by the facility that is covered under the VPA permit will be treated and discharged pursuant to a VPDES permit for a new discharge;
- The owner or operator installs state-of-the-art nutrient removal technology at such a facility, and
- Such facilities cannot generate credits or waste load allocations, based upon the removal of land application sites that can be acquired by other permitted facilities to comply with the nutrient trading legislation or WGP.

The legislation becomes effective on July 1, 2007. OWPP has identified the facilities that would be eligible to make such a petition to the Board; these facilities, and the permitted design capacities for which they may apply, are found on the following table:

VPA permittees in the Chesapeake Bay watershed that may be eligible for WLAs as VPDES dischargers

| Facility Name | Permit Number | Region | Tributary | Design Flow (MGD) as of 7/1/05 | Permitted design capacity (discharged lbs/yr) as of 7/1/05 | |
|-----------------------------------|---------------|--------|---------------|--------------------------------|--|------|
| | | | | | TN | TP |
| Cherrystone Campground | VPA01022 | TRO | Eastern Shore | 0.08 | 4556 | 609 |
| Best Western Motel - Cape Charles | VPA01058 | TRO | Eastern Shore | 0.02 | 1139 | 152 |
| Roxbury Industrial Park | VPA00524 | PRO | James | 0.01 | 814 | 109 |
| Craigsville STP | VPA01542 | VRO | James | 0.25 | 14238 | 1903 |
| PWCSA – Occoquan Forest WWTP | VPA00007 | NVRO | Potomac | 0.09 | 5012 | 670 |
| Bristow Manor Golf Club | VPA00012 | NVRO | Potomac | 0.01 | 626 | 84 |
| Coles Point WWTS | VPA01423 | PRO | Potomac | 0.15 | 8543 | 1142 |
| USA - Fort A P Hill - Cook Camp | VPA00008 | NVRO | Rappahannock | 0.02 | 957 | 128 |
| Rappahannock Associates | VPA01409 | PRO | Rappahannock | 0.03 | 1709 | 228 |
| Westminster Canterbury | VPA01401 | PRO | Rappahannock | 0.05 | 2848 | 381 |
| Greene County WWTF | VPA01547 | VRO | Rappahannock | 0.18 | 10251 | 1370 |

Recommended Actions :

This legislation was intended strictly to relieve existing VPA permittees of the offset requirement that would otherwise be imposed on new VPDES dischargers. The allocations cannot be traded; accordingly, they cannot be “bubbled” to provide additional capacity to the owner/operator of any other permitted facility, and “regionalization” is permitted only if no WLA is transferred to the regional facility.

Owners/operators should request the WLA concurrently with their application for the IP, in a cover letter to their registration for coverage under the WGP, and should request the mass loads for total nitrogen and total phosphorus as described below. If approved, the WLA will be recorded on the WGP Registration List as an annual load limit:

Total Nitrogen WLA = LESSER OF Permitted design capacity (from table in this Appendix), OR
 $3.00 \text{ mg/l} \times \text{proposed design flow (MGD)} \times 8.3438 \times 365 \text{ days/yr}$

Total Phosphorus WLA = LESSER OF Permitted design capacity (from table in this Appendix), OR
 $0.30 \text{ mg/l} \times \text{proposed design flow (MGD)} \times 8.3438 \times 365 \text{ days/yr}$

The IP for these facilities should contain the applicable reopeners, technology based annual concentration limits and monitoring/reporting requirements as outlined in this guidance. Regional permit staff should recognize that the owner/operator may opt to comply with the IP by retaining the land application capacity; this may affect the nutrient removal technology installed (and, by extension, the annual concentration limits).

The following table summarizes permit requirements for facilities subject to nutrient trading regulation. Where example language is provided, it must be used verbatim.

| Situation or Requirement | Permit language | Fact sheet language |
|---|--|---|
| <p>Except in the case of local WQS or TMDLs, the effluent limit pages of individual permits should not address loading. Monitoring (typically associated with annual concentration limits) may be included.</p> | <p>(as a footnote on each effluent limits page for outfalls covered by the Watershed General Permit, in which there are NO concentration limits or monitoring)</p> <p><i>This facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010094, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.</i></p> <p>(as a footnote on each effluent limits page for outfalls covered by the Watershed General Permit, in which there ARE concentration limits or monitoring)</p> <p><i>In addition to any Total Nitrogen or Total Phosphorus concentration limits (or monitoring requirements without associated limits) listed above, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010094, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.</i></p> | <p>Any narrative describing the applicability of the Watershed General Permit to the facility (whether existing, expanding or new) is acceptable.</p> |
| <p>As facilities design treatment works to meet the annual load limits in the WGP, some may propose staged construction of treatment units, reclamation/reuse, purchasing compliance credits, bubbling or some combination of the above. In these cases, permit staff may have difficulty establishing appropriate technology-based concentration limits for IPs. The following language is provided for these cases, and should be added as a separate paragraph to the boilerplate CTC/CTO condition and fact sheet justification, respectively.</p> | <p><i>(municipal facilities, to be added to the standard CTC/CTO condition) Upon issuance of a CTC, DEQ staff shall initiate modification, or alternately, revocation and reissuance, of this permit, to include annual concentration limits based on the nutrient removal technology listed in the CTC. Upon issuance of a CTO, any nutrient removal facilities installed shall be operated to achieve design effluent levels.</i></p> <p><i>(industrial facilities, as a stand-alone condition) This facility shall submit a Concept Engineering Report (CER) for DEQ approval prior to installation of any nutrient removal wastewater treatment technology. Upon approval of a CER for the installation of nutrient removal technology, DEQ staff shall initiate modification, or alternately, revocation and reissuance, of this permit, to include annual concentration limits based on the technology proposed in the CER. The permittee shall inform the DEQ regional office within 14 days of completion of construction of any project for which a CER has been approved. Upon completion of construction in accordance with a CER that has been approved by the DEQ regional office, any nutrient removal facilities installed shall be operated to achieve design effluent levels.</i></p> | <p><i>9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.</i></p> |

| Situation or Requirement | Permit language | Fact sheet language |
|---|---|--|
| <p>Special condition pertaining to reporting of monitoring data</p> | <p><i>Nutrient reporting calculations:</i></p> <p><i>For each calendar month, the DMR shall show the calendar year-to-date average concentration (mg/L) calculated in accordance with the following formulae:</i></p> $AC_{avg-YTD} = (\sum_{Jan-current\ month} MC_{avg}) \div (\# \text{ of months })$ <p><i>where:</i> $AC_{avg-YTD}$ = calendar year-to-date average concentration (mg/L)(parameter codes 805 and 806) MC_{avg} = monthly average concentration (mg/L) as reported on DMR</p> <p><i>The total nitrogen and phosphorus average concentrations (mg/L) for each calendar year (AC) shall be shown on the December DMR due January 10th of the following year. These values shall be calculated in accordance with the following formulae:</i></p> $AC_{avg} = (\sum_{Jan-Dec} MC_{avg}) \div 12$ <p><i>where:</i> AC_{avg} = calendar year average concentration (mg/L)(parameter codes 792 and 794) MC_{avg} = monthly average concentration (mg/L) as reported on DMR</p> <p><i>For Total Phosphorus, all daily concentration data below the quantification level (QL) for the analytical method used should be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.</i></p> <p><i>For Total Nitrogen (TN), if none of the daily concentration data for the respective species (i.e., TKN, Nitrates/Nitrites) are equal to or above the QL for the respective analytical methods used, the daily TN concentration value reported shall equal one half of the largest QL used for the respective species. If one of the data is equal to or above the QL, the daily TN concentration value shall be treated as that data point is reported. If more than one of the data is above the QL, the daily TN concentration value shall equal the sum of the data points as reported.</i></p> | <p><i>Nutrient reporting calculations</i></p> <p><i>Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.</i></p> |
| <p>For facilities whose permits contain annual concentration limits (it is not necessary for the facility to be an E3/E4 facility at the time of permit issuance for this condition to be included in the permit; this may serve as a placeholder)</p> | <p><i>The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus are suspended during any calendar year in which the facility is considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level, provided that the following conditions have also been met:</i></p> <p>a. <i>The facility has applied for (or renewed) participation, been accepted, maintained a record of</i></p> | <p>Suspension of concentration limits for E3/E4 facilities</p> <p>9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as</p> |

| Situation or Requirement | Permit language | Fact sheet language |
|--|--|--|
| | <p><i>sustained compliance and submitted an annual report according to the program guidelines;</i></p> <p><i>b. The facility has demonstrated that they have in place a fully implemented environmental management system (EMS) with an alternative compliance method that includes operation of installed nutrient removal technologies to achieve the annual average concentration limitations, and</i></p> <p><i>c. The E3/E4 designation from DEQ and implementation of the EMS has been in effect for the full calendar year.</i></p> <p><i>The annual average concentration limitations for Total Nitrogen and/or Phosphorus, as applicable, are not suspended in any calendar year following a year in which the facility failed to achieve the annual average concentration limitations as required by b. above.</i></p> | <p><i>required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.</i></p> |
| <p>Until the final procedures for review and approval of offsets have been developed by OWPP, regional staff should include the following language in IPs for owners/operators that are required to offset increased nutrient waste loads from their facilities, whether by new construction or by expansion:</p> | <p><i>Offset Requirement</i></p> <p><i>“Any annual Total Nitrogen and/or Total Phosphorus loadings above and beyond those permitted prior to July 1, 2005 shall be offset subject to a DEQ-approved trading contract prepared in accordance with § 62.1-44.19:12 - :19 of the Law and 9 VAC 25-820-10 et seq., and which includes, but is not limited to, the following:</i></p> <ul style="list-style-type: none"> <i>a. Discussion of the source of the acquired allocations,</i> <i>b. Discussion of other permitted facilities involved in the trade, and</i> <i>c. Discussion of any non-point source allocations acquired.</i> <p><i>“This proposal shall provide for the waste loads that are projected to be discharged on an annual basis for the term of this permit, and shall be approved prior to the <u>commencement of discharge from</u> the new or expanded facility. Once approved, the conditions of the proposal pertaining to verification of non-point allocations acquired, or self-offsetting practices implemented, become an enforceable part of this permit.”</i></p> | <p><i>Offset Requirement</i></p> <p><i>Rationale: The Virginia General Assembly, in its 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.</i></p> |
| <p>Once the final procedures for review and approval of offsets have been developed by OWPP, regional staff should insert the following language in IPs for permittees that have elected to acquire non-point load reductions, or have submitted a proposal to offset their waste load themselves:</p> | <p><i>Offset Requirement</i></p> <p><i>“The permittee has elected to offset the annual Total Nitrogen and/or Total Phosphorus loadings above and beyond those permitted prior to July 1, 2005 through (the acquisition of non-point source load reductions) or (through a proposal approved by the Department that involves (insert brief summary here)). Records of this acquisition shall be maintained on site by the permittee and are subject to field verification by, or on behalf of, the Department. Should the reductions not be verifiable, or should they not be fully achieved, the permittee shall be required to obtain any additional waste load or load reductions necessary to offset the waste load discharged by the permittee in the calendar year for which the load reductions were acquired .</i></p> | |

| Situation or Requirement | Permit language | Fact sheet language |
|--|--|--|
| <p>IP with Total Phosphorus limitations based on a Nutrient Enriched Waters designation should contain the following condition as appropriate:</p> | <p><i>Watershed General Permit Controls</i></p> <p><i>Upon the effective date of the permittee’s Watershed General Permit Total Phosphorus limitation, the monthly average and weekly (choose one average or maximum) Total Phosphorus loading limitations contained herein are waived. This permit may receive annual average concentration limits to reflect technology installed by the permittee for the control of total phosphorus, whether by new construction, expansion, or upgrade.</i></p> | <p><i>Watershed General Permit Controls</i></p> <p><i>9 VAC 25-40-30 D exempts facilities located in the Chesapeake Bay watershed from Total Phosphorus loading limits that are based on the receiving stream’s previously being classified as Nutrient Enriched Waters, on the basis that more stringent annual loading limits (i.e., from the Watershed General Permit) apply to such facilities.</i></p> |
| <p>This should be included in all permits that are subject to the nutrient trading regulation. Note that if the permit contains other reopeners, any language complementary to this condition may be added, but this language (as well as the fact sheet justification) must otherwise be retained as provided in the guidance.</p> | <p><i>Reopener</i></p> <p><i>This permit may be modified or, alternatively, revoked and reissued:</i></p> <p><i>b. If any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements;</i></p> <p><i>c. To incorporate technology-based effluent concentration limitations for nutrients in conjunction with the installation of nutrient control technology, whether by new construction, expansion or upgrade, or</i></p> <p><i>d. To incorporate alternative nutrient limitations and/or monitoring requirements, should:</i></p> <p><i>i. the State Water Control Board adopt new nutrient standards for the water body receiving the discharge, including the Chesapeake Bay or its tributaries, or</i></p> <p><i>ii. a future water quality regulation or statute require new or alternative nutrient control.</i></p> | <p><i>Reopener</i></p> <p><i>9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.</i></p> <p><i>9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.</i></p> |